

What is claimed is:

1. A lubricant sheet for making a hole used for a printed circuit board, comprising an organic substance layer having a thickness of 0.02 to 3.0 mm and formed of a mixture (a) or a mixture (b) and a metal foil having a thickness of 0.05 to 0.5 mm,

said organic substance layer being formed on one surface of said metal foil,

said mixture (a) being a mixture containing 20 to 90 parts by weight of polyether ester (I), 10 to 80 parts by weight of a solid water-soluble lubricant (II), the total amount of the polyether ester (I) and the solid water-soluble lubricant (II) being 100 parts by weight, and 2 to 10 parts by weight of polyethylene glycol (III) having a number average molecular weight of 200 to 600, and

said mixture (b) being a mixture containing 20 to 90 parts by weight of said polyether ester (I), 10 to 80 parts by weight of said solid water-soluble lubricant (II), the total amount of the polyether ester (I) and the solid water-soluble lubricant (II) being 100 parts by weight, and 2 to 20 parts by weight of a liquid water-soluble lubricant (IV).

2. A lubricant sheet according to claim 1, wherein said polyether ester (I) contains a polyethylene oxide having a number average molecular weight of at least 10,000.

3. A lubricant sheet according to claim 2, wherein said polyethylene oxide having a number average molecular weight of at least 10,000 is contained in an amount ratio of from 10 to 200 parts by weight based on 100 parts by weight of said polyether ester (I).

4. A lubricant sheet according to claim 1, wherein said polyether ester (I) has a melting point or a softening point in the range of from 30 to 200 °C.

5. A lubricant sheet according to claim 1, wherein said solid water-soluble lubricant (II) is at least one lubricant selected from the group consisting of polyethylene glycol having a number average molecular weight of from 1,000 to 9,000, a monoether of polyoxyethylene, an ester of polyoxyethylene, polyoxyethelene sorbitan monostearate, polyglycerine monostearate and a polyoxyethylene propylene block polymer.

6. A lubricant sheet according to claim 1, wherein said solid water-soluble lubricant (II) has a melting point or a softening point in the range of from 30 to 200 °C.

7. A lubricant sheet according to claim 1, wherein said liquid water-soluble lubricant (IV) is at least one lubricant selected from the group consisting of a liquid monoether of polyoxyethylene, an ester of polyoxyethylene, a sorbitan monoester of polyoxyethelene, liquid polyglycerine monoesters and a liquid polyoxyethylene propylene block polymer.

8. A lubricant sheet according to claim 1, wherein said liquid water-soluble lubricant (IV) is liquid at room temperature.

9. A method of making a hole in a printed circuit board, comprising disposing the lubricant sheet for making a hole recited in claim 1 on at least a topmost surface of a printed circuit board and making a hole with a drill in said printed circuit board from the topmost surface side.

10. A lubricant sheet for making a hole used for a printed circuit board, comprising a layer formed of a water-soluble polymer and having a thickness of 0.02 to 3.0 mm and a metal foil having a thickness of 0.05 to 0.5 mm,

said water-soluble polymer layer being formed on one surface of said metal foil, and

the lubricant sheet having at least one constitution selected from (a), (b) and (c),

(a) said water-soluble polymer layer is formed of a mixture of the water-soluble polymer and an organic filler (V),

(b) the surface of said metal foil which surface is to be bonded to said water-soluble polymer layer has a surface roughness of from 5 to 15 μm , and

(c) said metal foil is an aluminum foil having an aluminum purity of at least 99.5 %.

11. A lubricant sheet according to claim 10, wherein said water-soluble polymer layer is an organic substance layer composed of 20 to 90 parts by weight of said polyether ester (I) and 10 to 80 parts by weight of said solid water-soluble lubricant (II).

12. A lubricant sheet according to claim 10, wherein said water-soluble polymer layer has a thickness of from 0.02 to 1.0 mm.

13. A lubricant sheet according to claim 11, wherein said organic filler (V) is added in an amount of 1 to 50 parts by weight when the total amount of said polyether ester (I) and said solid water-soluble lubricant (II) is 100 parts by weight.

14. A method of making a hole in a printed circuit board,
comprising disposing the lubricant sheet for making a hole
recited in claim 10 on at least a topmost surface of a printed
circuit board and making a hole with a drill in said printed
5 circuit board from the topmost surface side.